DUF6
Depleted Uranium Hexafluoride Conversion Project

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Operational Environmental Management Plan

UDS
Uranium Disposition Services, LLC

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U.S. Department of Energy
Portsmouth Paducah Project Office
Portsmouth Site
Paducah Site

Depleted Uranium Hexafluoride Conversion Project Operational Environmental Management Plan

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DUF_6 CONVERSION PROJECT
PLAN
REVISION CONTROL

Revision Summary

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LIST OF ACRONYMS

CMM	Cylinder Management Manager
DFF&O	Director's Final Findings and Orders
DOE	Department of Energy
DUF_6	Depleted Uranium Hexafluoride
EPA	United States Environmental Protection Agency
ES&H	Environment, Safety and Health
HF	Hydrofluoric Acid
ISMS	Integrated Safety Management System
KY	Kentucky
O&M	Operations and Maintenance
OEMP	Operational Environmental Management Plan
OEPA	Ohio Environmental Protection Agency
PM	Project Manager
P2WM	Pollution Prevention Waste Minimization
RPMP	Regulatory and Permitting Management Plan
PCB	Polychlorinated Biphenyl
TSCA	Toxic Substances Control Act
UDS	Uranium Disposition Services, LLC
UF_6	Uranium Hexafluoride
UO_2F_2	Uranyl Fluoride

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

1 INTRODUCTION

Uranium Disposition Services, LLC (UDS) has been selected by the U.S. Department of Energy (DOE) to disposition the depleted uranium hexafluoride (DUF_6) that is being stored at three sites: Paducah, Kentucky; Portsmouth, Ohio; and the East Tennessee Technology Park in Oak Ridge, Tennessee. This DUF_6 is a by-product of uranium enrichment that produced uranium suitable for use as nuclear reactor fuel or in national security applications.

In order to disposition this DUF_6, UDS will design, construct, and operate DUF_6 conversion facilities at Paducah and Portsmouth. These facilities employ a dry conversion process that utilizes a one-step fluidized bed unit to convert DUF_6 to uranium oxide powder that is collected and packaged for reuse or disposal. This is accomplished by reacting DUF_6 gas with steam and hydrogen that produces hydrofluoric acid as a saleable end product. Start up of these facilities is planned for January 2008 at Portsmouth and February 2008 at Paducah.

Construction of these facilities commenced in July 2004. Construction is expected to continue until approximately June 2007. During this construction period, UDS functions as the over-all construction manager and assures that all applicable environmental requirements are met.

In July 2005, UDS became responsible for management of various cylinder yards at the Paducah and Portsmouth sites. As such, UDS maintains the DOE inventory of DUF_6, low-enriched uranium hexafluoride (UF_6), natural assay UF_6, and heel cylinders in safe storage until ultimate disposition, and performs initial screening of DUF_6 cylinders for delivery to the conversion facility staging area for processing. Concurrent with these cylinder management responsibilities, UDS also assures compliance with applicable environmental regulatory requirements. These requirements include the Ohio Environmental Protection Agency's (OEPA's) Director's Final Findings and Orders (DFF&O), the Commonwealth of Kentucky's (KY's) Natural Resources and Environmental Protection Cabinet's Agreed Order, and the United States Environmental Protection Agency (EPA) Region 5's Toxic Substances Control Act (TSCA) Approval for the Portsmouth Gaseous Diffusion Plant.

2 OPERATIONAL ENVIRONMENTAL OBJECTIVES

Consistent with the DUF_6 Conversion Project's overall environmental and associated regulatory and permitting requirements, UDS has developed this Operational Environmental Monitoring Plan to meet the following operational environmental objectives:

- Manage the cylinder yards to protect the environment and prevent pollution, by employing the best technologically sound, economically feasible controls
- Comply with relevant environmental regulatory and permitting requirements, applicable regulatory agreements, OEPA's DFF&O, KY's Agreed Order, and EPA's TSCA Approval
- Focus on the primary environmental concerns including management of materials handling and storage, solid and hazardous waste management, air and water effluents, and prevention of adverse environmental impacts
- Require subcontractors and their subtier subcontractors to be environmentally aware and to adhere to relevant regulatory, environmental permitting, environmental protection, and pollution prevention requirements
- Monitor and measure environmental performance through routine assessments of cylinder yard management activities

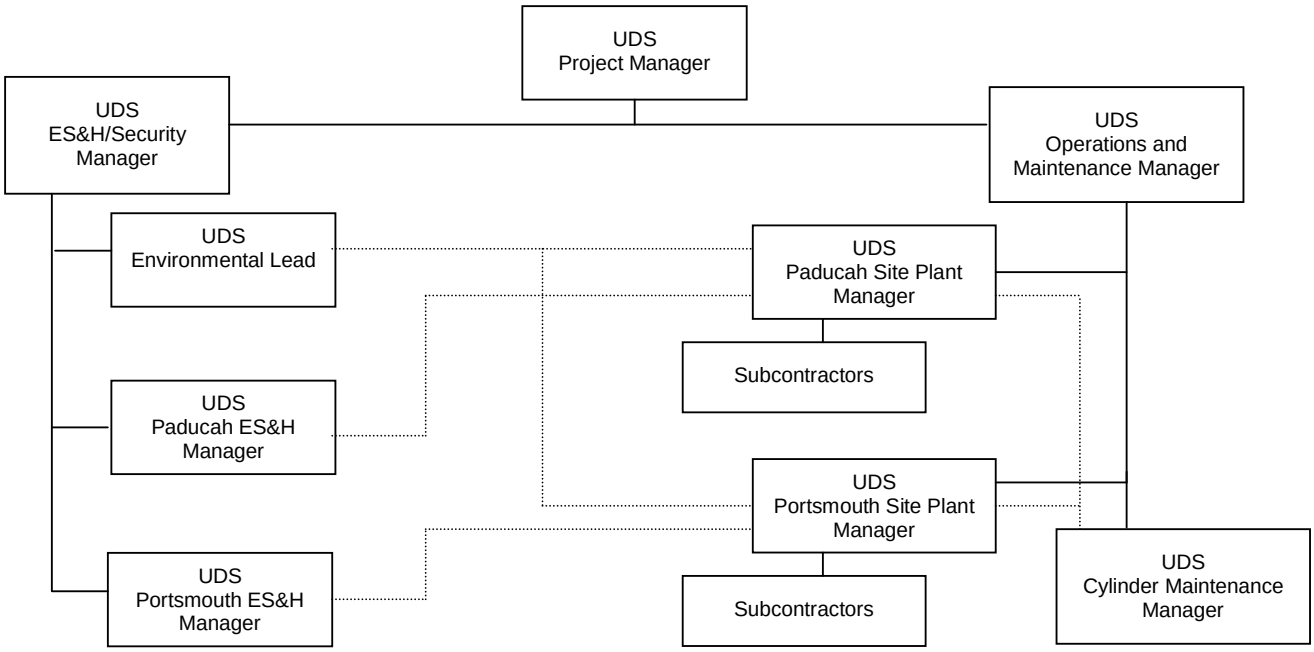
3 SCOPE AND APPLICABILITY

This OEMP shows UDS's environmentally related organization for cylinder yard management, and assigns specific roles and responsibilities for environmental management to UDS and its subcontractors, as appropriate, at the Paducah and Portsmouth cylinder yards. In addition, this OEMP establishes project requirements during cylinder yard management for minimizing potential environmental impacts, and discusses those key issues related to materials and waste management, air and water effluent control, impact prevention, and regulatory requirements.

All organizations and personnel involved in construction and cylinder yard management for the DUF_6 Conversion Project are required to comply with the requirements set forth in this OEMP.

4 ENVIRONMENTAL CYLINDER YARD ORGANIZATION

Figure 1 - UDS Environmental Cylinder Yard Organization



The UDS environmental cylinder yard organization is structured for efficient attainment of the Project's operational environmental objectives, and promotes effective communications, clear assignment of roles and responsibilities, and efficient staffing through:

- Location of the UDS project manager (PM) and operations and maintenance (O&M) manager in the project office to facilitate direct and frequent communications

- A simple management structure that facilitates and accelerates environmental information flow up, down, across, and through the environmental and cylinder management groups

- Location of Environment, Safety, and Health (ES&H) managers and plant managers at the Paducah and Portsmouth Conversion Facility sites to facilitate their interactions and assure proper environmental oversight of cylinder yard management activities

4.1 ROLES AND RESPONSIBILITIES

All project personnel, including subcontractors, shown in Figure 1, have specific environmental roles and responsibilities.

4.1.1 UDS Project Manager

The UDS PM is responsible for project management and execution, which includes the implementation, integration, coordination, and oversight of all environmental activities associated with the design, construction, and operation of the conversion facilities at Paducah and Portsmouth.

4.1.2 UDS ES&H/Security Manager

The UDS ES&H/security manager reports directly to the PM and leads plan and procedure development, provides technical support to project participants, ensures that environmental compliance assessments are performed, and makes certain that the environmental program and its effects on the Project are provided visibility at the highest levels in UDS. Additionally, the ES&H/security manager administers the Project's regulatory and permitting efforts, assures that UDS adheres to its environmental policy, goals, and objectives, and obtains technical reviews on appropriate environmental and operational documentation to ensure that requirements have been properly addressed and satisfied.

4.1.3 UDS Operations and Maintenance Manager

The O&M manager reports to the PM to ensure that the Paducah and Portsmouth Conversion Facilities meet all applicable operational specifications and DOE requirements. The O&M manager oversees operations at both facilities and ensures that the Integrated Safety Management System’s (ISMS) functions and principles are implemented such that work is performed in a safe manner. In addition, the O&M manager oversees cylinder operations and disposition of waste materials, and supervises the UDS Paducah and Portsmouth plant managers, who manage the operations of their respective conversion facilities.

4.1.4 UDS Cylinder Management Manager

The cylinder management manager (CMM) reports to the O&M manager and has overall planning, integration, coordination, and oversight responsibility to ensure safe, compliant, and efficient management for cylinder yard operations. The CMM works with the UDS Portsmouth and Paducah plant managers, who have line management responsibility for cylinder and cylinder yard operations performed at their specific plants, to ensure that cylinder management activities are performed in a coordinated manner. In addition, the CMM develops and implements the *Cylinder Surveillance and Maintenance Plan,* DUF6-UDS-PLN-011, and coordinates and maintains DOE's cylinder inventory database.

4.1.5 UDS Environmental Lead

The UDS environmental lead reports functionally to the UDS ES&H/Security manager and provides environmental support directly to the UDS O&M manager to ensure integration and implementation of environmental requirements into the operation and management of the conversion facilities and cylinder yards. The environmental lead supports the Project's environmental policy, goals, and objectives, and prepares appropriate plans and procedures, and explicitly assures that cylinder yard operations at

Paducah and Portsmouth conform to applicable permitting and regulatory compliance requirements by reviewing applicable operations documentation.

4.1.6 UDS Plant Managers

The plant managers at the Paducah and Portsmouth facilities report to the O&M manager and are responsible for all onsite operating activities, including cylinder yard and cylinder management, conversion operations, process engineering, maintenance engineering, and infrastructure functions. Each plant manager supervises a site operations manager and a cylinder manager who are responsible for the conduct of plant operations, maintenance, and logistics. The plant managers also have supervisory input to the site ES&H managers who are accountable to the ES&H/security manager.

4.1.7 UDS Site ES&H Managers

The Paducah and Portsmouth site ES&H managers report functionally to the ES&H/security manager and provide environmental support directly to the site plant managers. They support the Project's environmental policy and goals, and by overseeing and assessing activities, determine if cylinder yard operations satisfy UDS's environmental objectives, and conform to applicable regulatory, permitting, and environmental requirements. Additionally, they collect appropriate data and information, and assist in the preparation of permit required and other environmental reports.

4.1.8 Subcontractors

UDS may use subcontractors for cylinder yard activities at the Paducah and Portsmouth sites. The contracts to be issued to UDS subcontractors will contain clauses that require them to comply with all applicable regulatory, permitting, environmental, and site requirements; to conduct their activities such that environmental impacts are avoided or mitigated; and to avoid or minimize the production of air and water effluents and waste materials. As appropriate they shall possess valid hazardous waste generator registrations. In addition, they shall be responsible for the proper management of all hazardous materials they bring on site, and the proper management and disposition of any solid and hazardous wastes they produce.

5 ENVIRONMENTAL REQUIREMENTS

The highest-level environmental program document is the *Regulatory and Permitting Management Plan* (RPMP), DUF6-UDS-PLN-002. This OEMP flows from the RPMP and focuses on those specific environmental requirements and guidelines directly related to activities associated with cylinder yard management. Additional environmental requirements in other plans and documents include the following:

- *Waste Management Plan*, DUF6-UDS-PLN-005
- *Cylinder Surveillance and Maintenance Plan*, DUF6-UDS-PLN-011
- *Integrated Safety Management System Plan for Operations*, DUF6-UDS-PLN-040
- *Pollution Prevention and Waste Minimization Plan*, DUF6-UDS-PLN-031
- *Paducah Spill Prevention Control and Countermeasure Plan*, DUF6-UDS-PLN- 054
- *Paducah Spill Prevention Control and Countermeasure Procedure*, UDS-SHP-702
- *Portsmouth Spill Prevention Control and Countermeasure Plan*, DUF6-UDS-PLN-066
- *Portsmouth Spill Prevention Control and Countermeasure Procedure*, UDS-SHP-703
- Ohio Environmental Protection Agency - Director's Final Findings and Orders
- Commonwealth of Kentucky - Agreed Order
- United States Environmental Protection Agency Region 5's TSCA Approval

The plant managers at Paducah and Portsmouth shall assure that all UDS employees and subcontractors comply with the requirements contained in these documents and plans, as well as the controls described below.

5.1 AIR QUALITY

Air quality and protection of air resources during cylinder yard management is maintained through equipment controls and good management practices as described below.

5.1.1 Vehicle and Equipment Emissions Control

All fossil-fueled vehicles and equipment used on site and in the cylinder storage yards shall meet the federal emission requirements for their year of manufacture. They shall have all exhaust emission controls installed by the manufacturer connected and in proper working order, be maintained in a proper state of tune, and use only those fuels designated by the manufacturer. Additionally, vehicles and equipment shall not be allowed to idle unnecessarily.

5.1.2 Radionuclide Control

Cylinder integrity breaches in the cylinder storage yards can result in the release and aerosolization of depleted uranium hexafluoride, which quickly reacts with moisture in the air to form hydrofluoric acid (HF) vapor and soluble uranyl fluoride (UO_2F_2). The inspection, testing, maintenance, and repair of stored cylinders, and prompt clean up of

released materials, as described in the *Cylinder Surveillance and Maintenance Plan*, Ohio DFF&O, and the Kentucky Agreed Order, will control these potential emissions.

5.2 WATER QUALITY

Water quality and protection of water resources during cylinder yard operations will be maintained through equipment controls and good management practices. Cylinder integrity breaches, and weathering and flaking of the paint on the cylinders' surfaces can result in the release of depleted uranium hexafluoride powder and polychlorinated biphenyls (PCBs), respectively, to the ground surface in the cylinder yards. These materials can then be translocated out of the cylinder yards due to storm water runoff, wind erosion and dusting, and mechanical transport.

The inspection, testing, maintenance, and repair of stored cylinders, and prompt clean up of released materials, as described in the *Cylinder Surveillance and Maintenance Plan*, Ohio DFF&O, and the Kentucky Agreed Order, will control these potential releases and translocations. Additionally and at Portsmouth only, as required by the Ohio DFF&O and EPA's TSCA Approval, UDS will take monthly samples of storm water runoff, as available, for uranium analyses, and quarterly samples of storm water runoff, as available, and sediments for PCB analyses.

5.2.1 Spill Prevention Control and Countermeasures

Leaks or releases of oil or oil products from the cylinder haulers can adversely impact ground and surface water quality and wetlands. The Paducah and Portsmouth spill prevention control and countermeasure plans and procedures provide detailed information and requirements for preventing and responding to discharges of oil and oil products in the cylinder yards.

5.3 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

Cylinder yard management activities may result in the generation of non-hazardous wastes, and may involve the use and storage of hazardous materials that may result in the generation of hazardous wastes. Management of these materials and wastes, should they be present, is through various controls and good management practices as found in the project's P2WM Plan, *Waste Management Plan*, and their supporting procedures.

5.3.1 Hazardous Materials

Management of hazardous materials shall be accomplished through:

- Handling and storing only the minimum amounts of hazardous materials needed consistent with cylinder yard operations and maintenance needs
- Storing hazardous materials in tanks, containers, and/or cabinets designed and approved for that purpose
- Designating and utilizing storage areas that minimize the potential for damage to the stored materials and allow for the containment of any leaks that may occur

- Properly maintaining hazardous materials storage areas through routine inspections and repairs as needed

- Having readily available appropriate spill control equipment and supplies, and personnel protective equipment

- Containing, cleaning up, and containerizing any inadvertent spills or leaks as soon as possible, and collecting and properly managing all clean up materials

- Immediately reporting spills of hazardous materials and quantities to the site UDS plant manager, CMM, and/or ES&H manager

- Providing readily accessible material safety data sheets for all hazardous materials stored or used on site

- Maintaining and tracking minimum, maximum, and average monthly inventories of hazardous materials stored and providing this information to the site ES&H manager

5.3.2 Non-Hazardous Wastes

Solid non-hazardous wastes, if generated by the workers could include lunch bags and other miscellaneous trash. These wastes shall be accumulated in strategically placed waste receptacles for collection by a local trash hauler for disposal at an off-site permitted facility.

5.3.3 Hazardous Wastes

Hazardous wastes, if generated in non-exempt quantities through use of the hazardous materials discussed above in Section 5.3.1, shall be managed from their generation, through storage, transport, and disposal as described in the Waste Management Plan. Specifically, generators shall:

- Possess a valid hazardous waste generator's identification

- Provide for the testing and evaluation, as needed, of suspect materials generated by them to determine if they are hazardous,

- Handle these wastes in accordance with the requirements found in the Resource Conservation and Recovery Act, and, as appropriate, Kentucky's or Ohio's hazardous waste regulations

- Prior to transport and off-site disposal, package, label, and store hazardous wastes in containers appropriate for that use in designated areas that minimize the potential for damage to the stored wastes and allow for the containment of any leaks that may occur

- Label and maintain the hazardous waste storage area through routine inspections to assure the inventory, detect any leaks, and provide repairs and/or overpacks as needed

- Have readily available appropriate spill control equipment and supplies, and personnel protective equipment

- Contain, clean up, and containerize any inadvertent spills or leaks as soon as possible and collect and properly manage all clean up materials

- Immediately report spills of hazardous wastes and quantities to the site UDS plant manager, CMM, and/or ES&H manager

- Provide the types and amounts of hazardous wastes produced and transported off-site for disposal to the site ES&H manager

- Provide copies of all hazardous waste manifests to the site ES&H manager

5.3.4 Waste Minimization

Cylinder yard activities shall be planned and conducted in a manner that minimizes waste generation and hazardous materials usage. Where waste generation cannot be avoided, materials will be reused and recycled to the extent practicable. In addition, UDS procurement will follow the applicable regulatory requirements for purchasing recycled and environmentally preferable products. Specific requirements are discussed in the P2WM Plan.

6 REGULATORY AND OTHER REPORTING REQUIREMENTS

In support of cylinder yard operations at Portsmouth only, as required by the Ohio DFF&O and EPA's TSCA Approval, UDS will take monthly samples of storm water runoff, as available, for uranium analyses, and quarterly samples of storm water runoff, as available, and sediments for PCB analyses.

The results of the Portsmouth water and sediment sampling and analyses for PCBs shall be submitted to EPA Region 5 annually, as required by EPA's TSCA Approval. The results for the Portsmouth monthly storm water runoff sampling and analyses for uranium shall be provided to DOE for inclusion in their Annual Site Environmental Report.

7 REFERENCES

Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet, "Agreed Order", October 2, 2003.

State of Ohio, Environmental Protection Agency, "Director's Final Findings and Orders", June 23, 2005.

United States Environmental Protection Agency, Region 5, "TSCA Approval for Storage for Disposal of PCB Bulk Product (Mixed) Waste (paint with 50 ppm or greater PCBs on cylinders containing radioactive material) at the U.S. DOE Portsmouth Gaseous Diffusion Plant, Portsmouth, OH", June 1, 2005.

UDS, *Cylinder Surveillance and Maintenance Plan*, DUF6-UDS-PLN-011

UDS, *Integrated Safety Management System Plan for Operations*, DUF6-UDS-PLN-040

UDS, *Paducah Spill Prevention Control and Countermeasure Plan*, DUF6-UDS-PLN-054

UDS, *Paducah Spill Prevention Control and Countermeasure Procedure*, UDS-SHP-702

UDS, *Pollution Prevention and Waste Minimization Plan*, DUF6-UDS-PLN-031

UDS, *Portsmouth Spill Prevention Control and Countermeasure Plan*, DUF6-UDS-PLN-066

UDS, *Portsmouth Spill Prevention Control and Countermeasure Procedure*, UDS-SHP-703

UDS, *Waste Management Plan*, DUF6-UDS-PLN-005